

XXIV. *On the Ichneumonidous Group Tryphonides schizodonti*, Holmgr., with *Descriptions of New Species*.
By CLAUDE MORLEY, F.E.S.

[Read December 6th, 1905.]

THESE injurious parasites have upon several occasions come before the notice of our Society. Thomas Desvignes published (Trans. Ent. Soc., 1862, pp. 215–222) descriptions of ten supposedly new species of the genus *Bassus*, unfortunately with no knowledge that Holmgren had previously brought out (Sv. Ak. Handl., 1855, pp. 353–371) an elaborate revision of the group, wherein all such species, indicated by the former, as had been unknown to Gravenhorst (Ichn. Europ., 1829, pp. 310–357) are fully dealt with. Desvignes' names have ever since remained unsynonymized, a mere encumbrance to catalogues, and it is only now that they are for the first time relegated to their true positions. Bridgman also described five supposititiously new species in our Transactions (1882, p. 161; 1883, p. 170; 1886, pp. 364–5; 1887, p. 375), of which there are still three considered to be good. No reliable mention of British representatives of this group was made till the publication in 1856 of Desvignes' "Catalogue of British Ichneumonidæ," wherein are recorded eighteen Gravenhorstian and one new species. Of these, *B. rufipes* is no more than a variety of *B. biguttatus*, and *B. insignis* of *B. exultans*; the same author's paper of 1862 added four species under preoccupied names, leaving the total at twenty-one kinds. In 1870 the Rev. T. A. Marshall's "Ichneumonidum Britannicorum Catalogus" enumerated thirty-nine species, of which thirteen are now regarded as synonyms. Kirchner's "Catalogus Hymenopterorum Europæ" of 1867 mentions sixty-two kinds, among which, however, at least twenty-four are synonyms and three of the Fabrician titles appertain to other groups. In 1872, the Entomological Society published "A Catalogue of British Hymenoptera," which has ever since, though now sadly obsolete, been the basis-list of entomophagous work in Britain. In it we find

Bassus rufiventris incorrectly placed in the genus *Polyblastus*, and Desvignes' names are still treated as valid; the number of species is placed at forty, though thirteen of these are now considered synonymous. To these I was enabled to compile nine additions, in the paper I had the honour of reading before you on March 6th, 1901, which brought the actual total to thirty-six indigenous species. The palæarctic fauna now includes little more than sixty species (a few of which I do not know), and of these I am herein able to add eight to our catalogue, and to describe four kinds which appear to be new.

PHTHORIMUS ANOMALUS, sp. n.

Head not narrowed posteriorly, entirely black and subglabrous with the strongly pilose maxillary palpi apically white; vertex posteriorly entire; frons nitidulous, shortly pilose, sparsely and obsoletely punctulate, centrally subcarinate with the scrobes large and glabrous; face strongly nitidulous; epistoma somewhat convex and distinctly discreted from the short, broad, apically strongly emarginate clypeus by a straight fossa which is laterally produced upwards to the orbits; cheeks much shorter than basal width of the stout and laterally margined mandibles. Antennæ short, not reaching beyond apex of thorax; black with the pedicellus pale above; flagellum possessing about nineteen joints, ferruginous beneath with apices of the joints subnodulose and infusate; apical joint conical and obtuse. Thorax strongly nitidulous, immaculate; mesonotum anteriorly subconvex, evenly and finely punctate, with distinct notauli; mesopleuræ sparsely and evenly punctate, basally impressed in the centre; metathorax very strongly and evenly punctate with the petiolar area subobsolete and spiracles circular; areola glabrous, parallel-sided and twice longer than broad, with lateral costæ distinct, but costulæ wanting; metapleuræ sparsely pilose. Scutellum black, hardly convex, nitidulous and obsoletely punctate; post-scutellum very small. Abdomen longer than head and thorax, immaculate, very strongly and evenly punctate throughout, with only the apices of the segments glabrous, and broadest at the apex of the first; second segment with distinct thyridii; terebra exerted, as long as the abdomen, with spicula flavous and strongly acuminate apically, valvulæ black and very strongly setiferous-pilose throughout. Legs clear red with all the coxæ and basal joint of trochanters black, with all the apical tarsal joints infusate; hind metatarsi, except apically, flavescent and four times longer than their con-

colorous calcaria; tarsi not longer than the tibiae, of which the hind pair is very slightly intumescent before the flavescens base. Wings hyaline with the stigma luteous, tegulae and base of costa pale flavous; areolet sessile, twice broader than long; nervellus opposite and intercepted distinctly below the centre.

Length, 6 mm. (Terebra, 4 mm.) ♀ only.

There can be no doubt that this anomalous species, from the conformation of the mandibles and spatulately compressed abdomen, belongs to this genus as set forth by Thomson (Opusc. Ent., xiv, 1474); and perhaps also to *Phthorima*, Först. (Verh. pr. Rheinl., 1868, p. 162), but the latter's diagnosis is too short and he presents no type. It is closely allied to *P. compressus*, Desv., but differs abundantly in the posteriorly broader head, distinct notauli, the metathoracic structure, abdominal puncturation, strongly exerted terebra and very much broader areolet.

The Rev. F. D. Morice took a single specimen at Longcross, on June 17th, 1904; the type is in my collection.

PROMETHUS DODSI, sp. n.

Black; legs, scutellum, post-scutellum and centre of abdomen broadly, red; antennae beneath, part of the face and of the mouth flavous; mesonotum closely and coarsely punctate, dull; antennae as long as the body; clypeus bifoveolate.

Length, 6 mm. ♀.

This species is so closely allied to *P. scutellaris*, Bridg., as to require no detailed description. Therefrom it differs in its twice longer antennae (which possess twenty-four, not twenty-two, joints), its bifoveate clypeus which is subdentately produced apically in the centre and distinctly impressed transversely before the base; in its dull and coriaceous punctate mesonotum, distinct and discally coalesced notauli, strongly transverse areola; in the broadly flavous facial orbits, entirely rufescent clypeus, apically black epistoma, the antennae entirely flavous beneath, darker scutellum and red post-scutellum, immaculate trochanters, testaceous stigma; and in having the abdomen and especially its basal segment stouter, with segments three, four, base of the fifth and apex of the second entirely clear red, the last-mentioned being striolate from its base nearly to its apex. In the dull and confluent punctate mesonotum it resembles *P. pulchellus*, from which the

entirely pale coxæ and scutellum, as also the clypeal structure, at once distinguish it.

Taken by Dr. Capron, probably in Surrey; the type is in my collection.

Uxori mihi hoc insectum dicatum volo.

HOMOPORUS NIGER, sp. n.

Head as broad as thorax, closely and finely punctate, somewhat dull; black with face, mouth except apices of mandibles, frontal orbits and the cheeks shortly, stramineous; vertex narrow and not posteriorly emarginate; frons strongly canaliculate centrally and the epistoma subdeplanate; clypeus convex, apically margined, evenly rounded and hardly emarginate apically in the centre; cheeks as long as breadth of mandibles at their base. Antennæ slightly longer than head and thorax, filiform, black above, scape and pedicellus stramineous and flagellum ferrugineous beneath. Thorax stout, somewhat nitidulous, strongly and evenly but not confluent punctate; notauli anteriorly wanting, though traceable from the broad and hamate pale line before the wing to the subdeplanate disc of the mesonotum; dots beneath both pairs of wings as well as before the anterior pair pale, as also is the mesosternum anteriorly; metathorax scabriculous, with the lateral costæ, petiolar and subquadrate basal areae entire. Scutellum strongly deplanate, black; deeply and evenly but not confluent punctate. Abdomen subparallel-sided, entirely black; the two basal segments coarsely and confluent punctate, with their ventral plica dull testaceous; the first basally bicarinate nearly to its centre and the second basally irregularly striolate; the third segment basally scabrous, apically (with the following) nitidulous, obsoletely punctate and pilose; sixth apically truncate and not compressed, the two last inconspicuous and hardly exerted. Legs clear fulvous; all the coxæ and trochanters clear stramineous with the hind coxæ basally black; hind tarsi not infusate, with calcaria one-third the length of their basal joint. Wings normal, radix stramineous, stigma fulvous; areolet sessile with the outer nervure sub-obsolete; nervellus sub-opposite and intercepted below its centre.

Length, 5 mm. ♂ only.

This species is certainly allied to *H. brevicornis*, Thoms. (only known in the ♀ sex), and it is just possible that it may represent its male, though differing in the short petiolar carinæ, posteriorly entire vertex, entirely pale stigma, substriate second segment and the colour of the

legs. At first I had thought it possibly the unknown ♂ of *H. longipes*, Holmgr., to which the colour of the legs is more nearly referable, but the comparatively short antennæ, entirely black abdomen and fulvous hind tarsi seem to preclude such a situation. In its distinct metathoracic areæ, it appears related with the *Aniarophron*-group, with which, however, it has no other character in common.

I swept this species from rank herbage in Wroxham Broad in the evening of June 14th, 1901; the type ♀ is in my collection.

HOMOPORUS REFLEXUS, sp. n.

Head closely and confluent punctate, dull, black; vertex not broad, posteriorly entire; frons centrally distinctly, but not deeply, canaliculate; face coriaceous punctate somewhat broader apically, with the epistoma a little convex and quadrately pale in the centre; clypeus testaceous, deplanate, not laterally elevated, but with the apical margin entire and strongly reflexed; palpi and base of the stout mandibles flavescens, latter slightly broader than the length of the cheeks. Antennæ longer than head and thorax, and slightly pilose, filiform, entirely black with the apices of the seven basal flagellar joints subnodulose. Thorax black, with a hamate line and a dot before with a longitudinal callosity beneath the front wings, and the basal margin of the mesopleuræ flavous; mesothorax somewhat nitidulous, finely and evenly punctate throughout with the notauli entirely wanting; metathorax evenly scabriculous throughout with minute circular spiracles, and the apex centrally substrigose between two broad and shallow foveæ. Scutellum subdeplanate, evenly and closely punctate, somewhat nitidulous, with the apical margin, together with that of the post-scutellum, transversely flavidous. Abdomen elongate-oval, immaculate, centrally as broad as thorax, finely alutaceous and dull, becoming nitidulous towards the slightly compressed anus; basal segment quadrate, laterally marginate with no carinæ, the following transverse with the second obsolete aciculate at its base; terebra reflexed. Legs clear red, with the tibiæ and front tarsi testaceous; the hind tibiæ becoming gradually nigrescent from centre to apex, and their tarsi entirely and the anterior at the apex, black; hind calcaria testaceous and not reaching centre of the metatarsus. Wings hyaline, with tegulæ white, stigma testaceous; areolet subpetiolate, broad with the outer nervure well defined; nervellus a little postfurcal and intercepted only slightly below the centre.

Length, 6½ mm. ♀ only.

From all the other members of the genus bearing an areolet and no petiolar carinæ, the present is very distinct in its apically entire and strongly reflexed clypeus. The alutaceous abdomen, thoracic coloration and general conformation ally it with *H. crassicus*, Thoms., from which it is sufficiently distinct in its clypeal and vertical structure, canaliculate frons, apically explanate face, the antennæ entirely and scutellum laterally immaculate, the interception of the nervellus, acutely margined basal segment, the dull testaceous hind tibiæ and abdominal plica.

The type, which is in my collection, was taken by Dr. Capron probably in Surrey; I also took this species in a greenhouse at Ryde in the Isle of Wight in August 1902.

HOMOPORUS INCISUS, Thoms., ♂.

Its author only knew the female of this species; the male differs in nothing but size and coloration. Epistoma, clypeus and mouth excepting apices of mandibles, stramineous, orbits and cheeks immaculate: a broad subhamate line before and a callosity beneath the front-wings, with the basal margin of the mesopleuræ stramineous; apices of scutellum and of post-scutellum, with the sides of the former somewhat broadly flavous; legs pale red with all the coxæ and trochanters, and the hind tibiæ (except at their extreme base and apex), whitish; abdomen subparallel-sided, broadest behind the centre.

Length, $5\frac{1}{2}$ mm.

A SYNOPSIS OF THE PALÆARCTIC BASSIDES.

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| (2). | 1. Metathoracic spiracles large and pale; scutellar fovea costate. | TRICHOMASTIX. |
| (1). | 2. Metathoracic spiracles small and immaculate; scutellar fovea simple. | |
| (8). | 3. Face dull and punctate, not distinctly impressed longitudinally. | |
| (5). | 4. Notauli deeply impressed; scape excised to its centre . . . | ZOOTREPHUS. |
| (4). | 5. Notauli obsolete; scape not deeply excised. | |

- (7). 6. Anterior segments transversely impressed ; tibiæ white . . . BASSUS.
- (6). 7. Anterior segments not impressed or tibiæ not white . . . HOMOPORUS.
- (3). 8. Face shining and subglabrous, bicarinate longitudinally.
- (10). 9. Areolet wanting ; abdomen not entirely black . . . PROMETHUS.
- (9). 10. Areolet present ; abdomen black and spatulately compressed . PHTHORIMUS.

TRICHOMASTIX, Voll.

A large black, shining species, with legs red ; scutellum laterally white 1. *flavipes*, Holmgr.

ZOOTREPHUS, Thoms.

- (2). 1. Flagellum 18-jointed ; anus broadly black ; metathorax more rugose 1. *ruficentris*, Grav.
- (1). 2. Flagellum 22-jointed ; anus narrowly black ; metathorax less rugose 2. *holmgreni*, Bridg.

BASSUS, Fab.

- (6). 1. Anterior coxæ not entirely pale ; abdomen rarely red-marked.
- (3). 2. Hind coxæ red ; basal segment apically pure white 1. *albosignatus*, Grav.
- (2). 3. All the coxæ black ; basal segment not white-marked.
- (5). 4. Apex of hind tibiæ black ; ♀ epistoma white-marked . . . 2. *varicosa*, Thoms.
- (4). 5. Apex of hind tibiæ ferruginous ; ♀ epistoma immaculate . . . 3. *annulatus*, Grav.
- (1). 6. Anterior coxæ entirely pale ; abdomen usually centrally red.
- (10). 7. All the coxæ pale.
- (9). 8. Abdomen not broadly red centrally ; hind tibiæ bicolored . . . 4. *tricoloratus*, Grav.
- (8). 9. Abdomen broadly red centrally ; hind tibiæ tricolored . . . 5. *lætatorius*, Fab.
- (7). 10. Hind coxæ basally black ; central segments red-banded . . . 6. *multicolor*, Grav.

HOMOPORUS, Thoms.

- (30). 1. Areolet wanting (?SYRPHOCTONUS, Först.).
- (19). 2. Metathoracic areae not entirely wanting.
- (14). 3. Second segment transverse ; anus often somewhat dull.
- (11). 4. Basal area distinct and entire ; hind tibiæ not white.
- (8). 5. Notauli wanting ; scutellum pale.
- (7). 6. Femora entirely, abdomen not broadly, red 1. *cinctus*, Grav.
- (6). 7. Femora basally black ; abdomen usually broadly red 2. *bizonarius*, Grav.
- (5). 8. Notauli distinct ; scutellum black.
- (10). 9. Hind femora black ; orbits alone pale 3. *graculus*, Grav.
- (9). 10. Hind femora red ; face immaculate 4. *brevitarsis*, Thoms.
- (4). 11. Basal area obsolete ; hind tibiæ white.
- (13). 12. Scutellum, and often the mesonotum and pleuræ, red 5. *pectoratorius*, Gr.
- (12). 13. Scutellum centrally black, apex or also the sides flavous 6. *alpinus*, Holmgr.
- (3). 14. Second segment quadrate ; anus strongly nitidulous.
- (16). 15. Clypeus convex ; antennæ shorter than expanded wings 7. *caudatus*, Thoms.
- (15). 16. Clypeus deplanate ; antennæ as long as expanded wings.
- (18). 17. Coxæ red ; epistoma immaculate ; second segment striolate 8. *longipes*, Holmgr.
- (17). 18. Coxæ black ; epistoma pale ; second segment not striolate 9. *punctiventris*, Th.
- (2). 19. Metathoracic areae entirely wanting.
- (21). 20. Scutellum subtumidous, immaculate 10. *borealis*, Holmgr.
- (20). 21. Scutellum normal, nearly always pale.

- (29). 22. Vertex of head more or less emarginate.
- (28). 23. Scutellum only partly pale; hind tibiæ usually black with base white.
- (27). 24. Meso-humeral marks, and usually the epistomal, wanting.
- (26). 25. Metathorax not apically red . . . 11. *biguttatus*, Grav.
- (25). 26. Metathorax apically red . . . 12. *abdominator*, Bridg.
- (24). 27. Meso-humeral marks, and the epistoma always pale . . . 13. *flavolineatus*, Gr
- (23). 28. Scutellum entirely pale; hind tibiæ red with apex black . . . 14. *tarsatorius*, Panz.
- (22). 29. Vertex of head not emarginate; scutellum laterally pale . . . 15. *fissorius*, Grav.
- (1). 30. Areolet present or abdomen broadly fulvous.
- (60). 31. Abdomen with no segment entirely red; hind tibiæ usually white.
- (41). 32. Petiolar carinæ distinct and usually elongate; tibiæ not mainly white.
- (36). 33. Hind tibiæ basally white.
- (35). 34. Petiolar carinæ parallel . . . 16. *ornatus*, Grav.
- (34). 35. Petiolar carinæ divergent (? ENIZEMUM, Först.) . . . 17. *deplanatus*, Grav.
- (33). 36. Hind tibiæ not white-marked.
- (40). 37. Clypeus not apically excised; scutellum black; areolet weak.
- (39). 38. Anterior coxæ and hind tarsi black 18. *brevicornis*, Thoms.
- (38). 39. Anterior coxæ and hind tarsi pale 19. *niger*, Morl.
- (37). 40. Clypeus apically excised; scutellum pale; areolet strong . . . 20. *sundevalli*, Holmgr.
- (32). 41. Petiolar carinæ short or wanting; hind tibiæ usually mainly white (? HOMOTROPUS, Först.)
- (59). 42. Scutellum not entirely pale, nor the second segment strongly elongate.
- (56). 43. Scutellum of normal size and convexity.

- (45). 44. Clypeus apically reflexed and entire 21. *reflexus*, Morl.
- (44). 45. Clypeus apically not reflexed nor entire.
- (47). 46. Clypeus apically strongly excised and laterally elevated 22. *incisus*, Thoms.
- (46). 47. Clypeus apically emarginate and not laterally elevated.
- (53). 48. Clypeus laterally foveate.
- (52). 49. Hind tibiæ basally infuscate.
- (51). 50. Scutellum apically white; ♀ flagellum red 23. *ruficornis*, Holmgr.
- (50). 51. Scutellum usually laterally white; ♀ flagellum black 24. *pumilus*, Holmgr.
- (49). 52. Hind tibiæ often externally, though hardly basally, infuscate 25. *dimidiatus*, Schr.
- (48). 53. Clypeus not laterally foveate.
- (55). 54. Hind tibiæ normal and basally infuscate 26. *longiventris*, Thoms.
- (54). 55. Hind tibiæ stout and not basally infuscate 27. *crassicornis*, Thoms.
- (43). 56. Scutellum large and somewhat strongly convex.
- (58). 57. Metathorax rugulose; second segment longitudinally strigose 28. *strigator*, Fab.
- (57). 58. Metathorax finely punctate; second segment not strigose 29. *megaspis*, Thoms.
- (42). 59. Scutellum entirely pale; second segment strongly elongate 30. *xanthaspis*, Thoms.
- (31). 60. Abdomen nearly always broadly red centrally; tibiæ not white.
- (66). 61. Scutellum not entirely black or basal segments scabrous.
- (63). 62. Scutellum at most apically pale; second segment punctate 31. *elegans*, Grav.
- (62). 63. Scutellum mainly pale; second segment subglabrous.
- (65). 64. Areolet present; second segment elongate 32. *pallidipes*, Grav.
- (64). 65. Areolet wanting; second segment transverse 33. *pulcher*, Holmgr.

- (61). 66. Scutellum entirely black; basal segments not scabrous (? ANIAROPHRON, Först.)
 (68). 67. All the coxæ pale; areolet present 34. *signatus*, Grav.
 (67). 68. Hind coxæ basally black; areolet wanting 35. *hygrobius*, Thoms.

PROMETHUS, Thoms.

- (12). 1. All the coxæ pale; petiolar area not coarsely sculptured.
 (7). 2. Scutellum pale.
 (6). 3. Abdomen broadly red centrally.
 (5). 4. Mesonotum dull; second segment mainly striolate . . . 1. *dodsi*, Morl.
 (4). 5. Mesonotum shining; second segment basally striolate . . 2. *scutellaris*, Bridg.
 (3). 6. Abdomen nearly entirely black 3. *nigriventris*, Thoms.
 (2). 7. Scutellum black.
 (11). 8. Notauli present; coxæ flavous.
 (10). 9. Abdomen nearly entirely black 4. *melanaspis*, Thoms.
 (9). 10. Abdomen broadly red in the centre 5. *sulcator*, Grav.
 (8). 11. Notauli wanting; coxæ white 6. *albicoxa*, Thoms.
 (1). 12. Hind coxæ mainly black; petiolar area finely sculptured.
 (14). 13. Basal segment twice longer than broad; coxæ white . . . 7. *cognatus*, Holmgr.
 (13). 14. Basal segment not elongate; coxæ flavescent.
 (16). 15. Third segment with a basal fascia or lateral gutta citrinous 8. *laticarpus*, Thoms.
 (15). 16. Third segment with no citrinous markings.
 (18). 17. Mesonotum dull and confluent punctate 9. *pulchellus*, Holmgr.
 (17). 18. Mesonotum shining and sparsely punctate.
 (20). 19. Stout; second segment apically glabrous 10. *festivus*, Fab.
 (19). 20. Slender; second segment entirely scabrous 11. *dorsalis*, Holmgr.

PHTHORIMUS, Thoms.

- (2). 1. Areola transverse ; temples narrow ; abdomen not strongly punctate 1. *compressus*, Desv.
 (1). 2. Areola elongate ; temples broad ; abdomen strongly punctate 2. *anomalus*, Morl.

SYNONYMY, ECONOMY AND DISTRIBUTION.

During the course of the last ten years I have been enabled to amass a little over seven hundred specimens of this group in Britain, and perhaps it may not be out of place to here indicate their relative frequency in our islands. The species bearing an asterisk have not yet been noted as indigenous ; of the rest there are only three species not represented in my collection, from the closely examined specimens of which alone this summary is drawn up, the respective number of specimens there representing each species is indicated in parentheses. A dagger indicates that the species is new to Britain.

- T. flavipes*, Holmgr. (1.) Very rare ; my only specimen was taken by Dr. Capron, probably about Shere in Surrey ; Bridgman records it from Worcester in May, and doubtfully from Norfolk. It has been bred from a *Syrphus* pupa. [= *T. polita*, Voll. ; = *B. tibialis*, Bridg. ; = *T. pallipes* (*sic*), Thoms.]
- Z. rufiventris*, Grav. (7.) Not rare at Brandon in Suffolk in June 1903 ; Lowestoft on umbelliferous flowers, August ; Wicken in Cambs., June ; Reigate in July. [= *sulcator*, var. 2, Grav., ♂.]
- Z. holmgreni*, Bridg. (16.) Somewhat common in the Breck district of Suffolk, June to August ; Surrey (*Capron*) ; Greenings (*W. Saunders*) ; Harting in May (*Beaumont*) ; Point of Aire (*Tomlin*). [I have followed Thomson in considering the species of *Zootrephus* as distinct ; it is quite possible that Bridgman did not know *Z. rufiventris*, which stood under an incorrect genus in the British list. The relative rugosity of the metathorax and rufescence of the abdomen are the only features of separation which to me appear to be at all constant. Thomson separates them thus :—

HOLMGRENI, ♀.

RUFIVENTRIS, ♀.

<i>Flagellum</i> ferrugineous, 22-jointed	infusate above, 18-jointed.
<i>Metathorax</i> more rugose	less rugose.
<i>Basal segment</i>	longer.
rugose with carinæ distinct	less rugose with shorter carinæ.
<i>2nd segment</i> fulvous or (var. b) basally black with thyridii obsolete	black with red line thyridii large and subcircular.
<i>2nd to 4th</i> with epipleuræ inflexed	<i>2nd and 3rd</i> with epipleuræ inflexed.
<i>3rd and 4th</i> always red	red, discally black-marked.
<i>Hind legs</i> elongate	less elongate.
femora red	red with black dot beneath.
trochanters citrinous	stramineous, basally black.
coxæ basally black	black to beyond their centre.
<i>Intermediate coxæ</i> citrinous	basally black.]

B. albosignatus, Grav. (4.) Certainly rare, occurring only in July; Cadney, Lincs. (*Peacock*); Nairn (*Yerbury*); Southwold on flowers of *Heracleum sphondylium*; Kessingland, Suffolk, flying on the beach. It has been bred from *Syrphus* sp. [= *albosignatus*, Grav., ♀ et var. 3, ♂; Holmgr., excl. var. 3.]

B. varicoxa, Thoms. (17.) Common, June to August; Suffolk, Cambs., Herts., Point of Aire. [= *albosignatus*, var. 3, Holmgr. = ? *albosignatus*, var. 1, Grav.]

B. annulatus, Grav. (9.) Not very common from middle of July to end of September; Suffolk, Surrey. [= ? *albosignatus*, var. 2, Grav. It differs from *B. varicoxa*, Thoms., in the less deeply impressed incisures, entirely (♀) and internally (♂) ferrugineous apices of hind tibiæ; smaller humeral and scutellar pale marks and immaculate ♀ epistoma. The latter is probably no more than a variety.]

B. tricinctus, Grav. (43.) Abundant, May to September; Isle of Mull (*Tomlin*); Yorks. (*Askrigg*, *†Elliott*), Gloucester, Hereford, Herts., Suffolk, London, Surrey, Sussex, Hants., Devon. [= *albosignatus*, var. 4, ♂, Grav. = *nemoralis*, Holmgr. This species differs from *nemoralis* in nothing but the abdominal coloration; the latter is a var.]

B. lætatorius, Fab. (90.) Abundant, May to September; Norfolk, Suffolk, Essex, Lincs., Herts., Gloucester,

London, Kent, Surrey, Sussex, Isles of Wight and Purbeck, Cornwall (Cremyl, *Newbery*). Also from Bucarest. It is said to have been bred from such varied hosts as *Adimonia rustica*, *Tortrices*, *Syrphus balteatus* and *S. pinastri* (= ? *corollæ*);—*cf.* also Entom., 1884, p. 167.

B. multicolor, Grav. (13.) Very local but common where it occurs, in marshes, June; Horning Ferry in Norfolk and Tuddenham Fen in Suffolk; Sussex, Surrey. [= *delctus*, Thoms, ♂ ♀.]

H. cinctus, Grav. (18.) Uncommon in woods in May and June, also found in autumn; Lincs., Herts., Suffolk, Surrey. [= *lateralis*, Grav. = *albicinctus*, Desv., ♂; var. = *scabriculus*, Holmgr.]

H. bizonarius, Grav. (15.) By no means common, June to September; Herts., Norfolk, Suffolk, Essex; apparently commoner in Surrey. Also from Nantes. [= *cingulatus*, Holmgr. = ? *frontalis*, Brisch. This species greatly resembles *Bassus multicolor* superficially in its more or less distinct tranverse segmental impressions, entirely white scutellum and usually brightly cinctured central segments; the coloration of the hind tibiæ, however, readily distinguishes it from that genus. The outer recurrent nervure is rarely entirely wanting.]

H. graculus, Grav. (18.) Not uncommon in boggy spots in May, July and August; Suffolk, Herts., Gloucester, Surrey, Cornwall. [*B. graculus*, Grav., ♀ = *obscuripes*, Holm., ♂ ♀ = *rufocinctus*, Desv., ♂ ♀.]

H. brevitarsis, Thoms.* Switzerland.

H. pectoratorius, Grav. (11.) Local in woods in May and August; Suffolk, Surrey, Isle of Wight.

H. alpinus, Holmgr. ♀ [= ? *monticola*, Voll., ♂.]* Scandinavia and ? Switzerland.

H. caudatus, Thoms.† (1.) The only specimen I have seen was taken by Capron in Surrey.

H. longipes, Holmgr.* Scandinavia.

H. punctiventris, Thoms.† (2.) Felden near Boxmoor, in Herts. (*Piffard*); Cornworthy near Totnes, in Devon (*Marshall*).

H. borealis, Holmgr.* Lapland.

H. biguttatus, Grav. (9.) Probably not common; I only possess it from Surrey and Herts. [= var. *rufipes*, Grav., Holmgr. = var. (scut. apically white) *deplanatus*,

- Grav. et Holmgr., excl. ♂ (= *biguttatus*, var. e, Thoms.); = *confusus*, Woldst. This is a most variable species and the sexes are dissimilar.]
- H. abdominalator*, Bridg. The unique ♀ was taken by Bignell at Dousland (Devon.), August 23rd, 1884, and is in his collection. [This is probably no more than a colour variety of *H. biguttatus*, though considered valid by Thomson.]
- H. tarsatorius*, Panz. (52.) Abundant in woods and marshes in May and June, also occurs on flowers of *Angelica sylvestris* in the autumn; Yorks. (Askrigg, *Elliott*), Lincs., Suffolk, Herts., Surrey, Sussex, Isle of Wight. Also from Bucarest. It is said to have been bred from *Syrphus balteatus*, *Depressaria angeliella* and *Coccinella* sp. [= *insignis* et *exultans*, Grav. et Holmgr. = *pulchellus*, Desv., ♂ (*nec* Holmgr.) = *flavus*, Desv., ♂ (var. c, alis areola completa, Thoms.). This is the only species I know which may or may not possess an areolet; when present it is very small, oblique, consisting of little more than the duplication of its basal nervure; only one ♀ of my fifty specimens possesses it.]
- H. flavolineatus*, Grav. (11.) Not very common, June and August; Suffolk, Herts., Surrey, Devon. [= *interruptus*, Holmgr., ♂ = *bimaculatus*, Holmgr. ♂; *nec* Zett.]
- H. fissorius*, Grav. (9.) Uncommon and always occurs singly, May, July, and September; Kent (Huntingfield, *Morice*), Surrey, Hants., Suffolk, Herts., Gloucester. [= *punctatus*, Bridg.; *nec* *fissorius*, Holmgr.]
- H. ornatus*, Grav. (7.) Very uncommon, May, August, and September; Suffolk (Lowestoft and Southwold), London (Blackheath and Plumstead, *Beaumont*), Hants. (Lyndhurst, *Adams*), Isle of Wight (Ryde). It has been bred from *Syrphus* sp. [= *frenator*, Desv., ♂. = *ornatus*, Thoms., ♂ ♀. = var. ♀; *deplanatus*, Holmgr., "♂."]
- H. deplanatus*, Grav. (3.) In Dr. Capron's collection from Surrey. It has been bred from *Syrphus* sp. [*deplanatus*, Grav. et Holmgr., excl. ♂ = *nigricornis*, Thoms., ♂. Gravenhorst's ♂ differs from that of *B. ornatus* (with which it is incorrectly synonymized by Thomson) in its immaculate face, red antennæ, immaculate sternum, black-marked front coxæ, simply white-

circled hind tibiæ, the pale marking of which does not extend down the leg, etc.]

H. brevicornis, Thoms.* France.

H. niger, Morl.† (1.) Norfolk.

H. sundevalli, Holmgr. I have not seen this species; recorded from Devon. in September (*cf.* Trans. Devon. Ass., 1898, p. 501). [= *scabrosus*, Desv., ♂.]

H. reflexus, Morl.† (2.) Isle of Wight and Surrey.

H. incisus, Thoms.† (4.) Apparently rare; Surrey and the Isle of Wight, in August.

H. ruficornis, Holmgr. [= ? *suspiciosus*, Erisch.]* Sweden and ? Prussia.

H. pumilus, Holmgr. (15.) Common from June to September; Cheshire, Herts., Suffolk, London (Wimbledon and Blackheath), Surrey, Isle of Wight. [= *thoracicus*, Desv., ♀ = ? *pictus*, Grav. *part.* One ♂ I examined possessed a distinct areolet in the left wing but no trace of one in the right.]

H. dimidiatus, Schr. (45.) Abundant, May to September; Scotland (Crockston and Bonhill, *Dalglish*), Suffolk, Herts., Sussex, Surrey, Hants., Isle of Wight and Cornwall. [= *pictus*, Grav., Holmgr., Thoms. = *planus*, Desv., ♂ ♀ (♀ = var. b, Thoms.).]

H. longiventris, Thoms.† (1.) The only male I have seen was swept in a marsh at Brandon in Suffolk, July 4th, 1903. [= *pumilus*, Holmgr. *part.*]

H. crassicus, Thoms.† (6.) Apparently not common, August and September; Suffolk, Sussex, Surrey. [= *fissorius*, Holmgr., *nec* Grav.]

H. strigator, Fab. (1.) The only specimen of this species I have seen was swept from herbage in Henstead marsh (Suffolk), August 28th, 1898. Said to have been bred from larvæ preying upon *Siphonophora absinthii*. [This ♂ is very like that of *H. tarsatorius* in facies, but—besides the distinct areolet and scutellar coloration—the second segment is longer, coarsely longitudinally strigose with the thyridii obsolete; metathorax rugulose and much narrower above the hind coxæ, with the petiolar area centrally striolate and bearing some traces of a basal area; head narrower behind the eyes, with the vertex much less emarginate; face more distinctly punctate with the epistoma more prominent and cheeks shorter; clypeus similarly excised centrally but

acuminately explanate at the sides; antennæ shorter and consisting of 21 (not 20, as in the latter) flagellar joints and the scutellum is more convex and coarsely punctate (*cf.* also Brischke, *Schr. Nat. Ges. Danz.*, 1878, no. 6, p. 112). The areolet and sculpture will also distinguish it from *H. fissorius*. It appears to only differ from *H. megaspis*, Thoms., in the sculpture of the metathorax and second segment, and in the colour of the hind tibiæ.]

- H. megaspis*, Thoms.* Bavaria.
- H. xanthaspis*, Thoms.† (4.) Rare; three from Surrey in Capron's collection and one I swept in Tuddenham Fen (Suffolk), August 23rd, 1905.
- H. elegans*, Grav. (35.) Abundant; June to October; London (Blackheath), Norfolk, Suffolk, Herts., Kent, Sussex, Surrey, Isle of Wight, Devon. Also from Nantua and Nantes. It has been bred from *Bombyx quercus*, and *Gracilaria phasianipennella*. [= *elegans*, Grav., ♀ (♂ in error), Holmgr., Desv. = *rufonotatus*, Holmgr. = *nigritarsus*, Grav., Holmgr., = *picitans*, Desv., ♂ ♀ (♂ = var. f., Thoms.).]
- H. pallidipes*, Grav. I have not seen this species; recorded from Devon in August (*cf.* *Trans. Devon. Ass.*, 1898, p. 501).
- H. pulcher*, Holmgr. (2.) Very rare; two from Surrey in Capron's collection.
- H. signatus*, Grav. (28.) Abundant, June to September; Lincs., Norfolk, Suffolk, Herts., Surrey, London, Hereford, Ireland (Rossbeigh in Kerry). It has been bred from *Syrphus sp.*
- H. hygrobius*, Thoms. (13.) Not uncommon, May to October; Surrey, Suffolk, Lincs., Scotland (Giffnock). Also from Nantes. [= *festivus*, Holmgr., *part*; *nec* Grav.]
- P. dodsi*, Morl.† (1.) Surrey.
- P. scutellaris*, Bridg. (4.) Certainly rare; all my specimens are from Surrey; Bridgman describes it from Devon. [*B. scutellaris*, Bridg., ♀ (*nec* ♂), Thoms., ♂ ♀.]
- P. nigriventris*, Thoms.* Sweden.
- P. melanaspis*, Thoms.* Bavaria.
- P. sulcator*, Grav. (78.) Abundant, May to October; Devon., Hants., Worcester, Herts., Suffolk, Norfolk, Cambs., Scotland (Crockston, *DalGLISH*). It has been bred from *Syrphus sp.* [*sulcator*, Grav., excl. var. 2-5 et 1 ♂ = *areolatus*, Holmgr.]

- P. albicoxa*, Thoms.† (9.) Probably not uncommon, June to August; Stafford., Herts., Norfolk, Surrey, Isle of Wight. [= ? *sulcator*, var. 5, Grav., ♂.]
- P. cognatus*, Holmgr. (20.) Common, May to September; Suffolk, Norfolk, Herts., Surrey, Sussex, Cornwall (Botustfleming, Marshall).
- P. laticarpus*, Thoms.† (5.) Rare, in boggy situations; ♀♀ swept in Henstead marsh (Suffolk), 12, vii, 1900, and Rockland Broad (Norfolk), 10, vi, 1901; ♂♂ at Metton (Norfolk), 30, viii, 1903; and Greenings (Surrey) from W. Saunders' collection, viii, 1871. Also from Nantes. [= ? *gracilentus*, Holmgr.]
- P. pulchellus*, Holmgr. (54.) Very common May to October; Suffolk, Norfolk, Northants., Herts., Wilts., Wales (Trefriw, *Newbery*), Devon., Cornwall, Isle of Wight. [= *sulcator*, var. 1 ♂, 3 et 4, Grav. = *festivus*, var. 2 et 3, Grav. = *fraterculus*, Först.]
- P. festivus*, Fab. (20.) Uncommon, July only; Suffolk, Herts., Surrey, Kent. It has been bred from *Syrphus* sp., and *Heliodines roesella* (cf. Isis, 1848, p. 986). [= *festivus*, Grav., ♂♀, excl. var., 2 et 3; Grav. var. 1, *facie tota nigra*, ♀.]
- P. dorsalis*, Holmgr. (9.) Not common, in marshy places, June and July; Suffolk, Surrey. [*B. dorsalis*, Holmgr. ♀ = *maculatus*, Desv. ♂♀.]
- P. compressus*, Desv. (1.) Very rare; I took a female at Felden in Herts., while staying with Mr. A. Piffard, flying on a chalky hillside, on August 9th, 1903—probably the only localized British specimen. I noticed that in life the abdomen was no less compressed. [= *Bassus ibatioides*, Kriech.]
- P. anomalus*, Morl.† (1.) Longcross.

I propose to conclude this paper with the description of four little-known species of *Bassus* (*sensu*, Grav.), which have been utterly ignored by all systematists:—

BASSUS HISPANICUS, Spinola.

Ann. Soc. Fr., ser. ii, I (1843), p. 118.

Dull and strongly punctate, black. Face deplanate, clypeus apically truncate and not discreted. Antennæ filiform, black, 32-jointed, and as long as the body; scape obconical and deeply excised; flagellar joints cylindrical with the second and third obconical, very short and the fourth elongate. Metathorax with a

central transverse carina and the petiolar area basally rounded. Scutellum and post-scutellum subconvex, immaculate. Abdomen black with segments two to four red; the basal longer than broad and apically explanate; second and third uniformly convex, with no transverse impressions. Legs red with coxæ, base of the front trochanters and apices of their tarsi, black. Wings hyaline; nervures basally, and tegulæ, red.

Length, 9 mm.

Southern Spain (*Victor Ghiliani*).

BASSUS ATHALIEPERDA, Curtis.

Farm Insects (1860), 53.

Black, minutely punctate and finely pubescent. Face and mouth white, with epistoma longitudinally, and the clypeal foveæ black; labrum and apices of mandibles dull ferruginous. Antennæ as long as the body. Legs red and somewhat stout; coxæ flavous; tarsi and basal half of hind tibiæ fulvous, the latter apically and their tarsi black. Wings iridescent; costa and stigma fulvous, nervures piceous; areolet wanting.

Length, 6 mm.

England; bred from *Athalia spinarum*.

BASSUS CARINULATUS, Ruthe.

Stett. Ent. Zeit. xx (1859), p. 373, ♂ ♀.

Black. Palpi infuscate; ♂ with face, mouth and apices of cheeks stramineous; ♀ with clypeus and mandibles ferruginous. Antennæ of ♂ as long as the body, basally fulvous, with the scape clear stramineous, beneath; of ♀ shorter, with the flagellum subrufescent beneath. Thorax of ♀ immaculate, with mesosternum closely punctate; of ♂ with lines before and beneath the radix, and the mesopleuræ anteriorly flavous. Scutellum black. Abdomen immaculate, with the basal segment rugosely punctate, bearing two subparallel carinæ; the second rugosely striate; anus of ♀ closely and finely punctate, of ♂ sparsely punctate and nitidulous. Legs pale red, with the hind tarsi and tibiæ black, the latter basally more or less broadly white; front coxæ of ♀ black, of ♂ stramineous. Wings with tegulæ of ♂ flavous; areolet triangular, petiolate, entire.

Length, 5-6 mm.

The ♀ resembles *B. deplanatus*, but is much more slender; the ♂ is nearer *B. ornatus*.

Iceland (*Dr. Staudinger*).

BASSUS PERONATUS, Marshall.

E. M. M., xii (1876), p. 194, ♀.

Shining, punctulate, black. Head transverse and broader than thorax; face deplanate and not centrally canaliculate. Antennæ as long as the body, infusate, testaceous beneath. Thorax nitidulous; mesosternum fulvous; metathorax rugose with distinct areæ, areola elevated and acutely margined. Scutellum convex, testaceous with its centre and two elongate lateral marks infusate. Abdomen shining, with all the segments narrowly white apically, and not transversely impressed; basal segment broad, depressed, and sub-contracted in front, with carinæ extending a little beyond its centre. Legs fulvous, hind ones stout; hind femora infusate with their tibiæ, except basally, and tarsi black. Wings with tegulæ white; areolet wanting; nervellus intercepted far below the centre.

Length, 6 mm.

This species is said to be closely related to *B. pectoratorius*, differing therefrom in its immaculate pleuræ and metathoracic costæ. I very strongly suspect, however, that it represents the unknown ♀ of *B. strigator*, Fab.

England; bred from *Nematus cadderensis* (cf. E. M. M., xii, p. 127).

I have quite failed to discover where *Bassus pipizæ*, Gir., is described; it is mentioned as parasitic upon *Pipiza noctiluca* in one of that author's posthumous works (cf. Laboulbène in Ann. Soc. Fr., 1877, p. 408). Dr. Giraud's memoirs are numerous, extending from 1854 to 1871 according to Mocsáry, but this species is not mentioned in the Annales from 1852 (when he joined the Society) to 1872, nor do I find it in the Zoological Record; it may appear in one of his contributions to the Verh. Wien. z. b. Ver., but it is more probably a MS. name (cf. Marshall, Bracon. d'Europ. i, 199).

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